

## **Chapter 10 OBSERVER and AIR CREW DUTIES**

### **A. INTRODUCTION**

1. As indicated previously the 'payload' for missions involving a search of any kind, whether it is a SAR case, Safety Patrol, ATON flight, MEP flight, etc. is the air crew or observer. Their role is to look for targets, both specific and non-specific incidental discovery such as an oil leak or disabled boat. They must then communicate with the pilot as well as the Coast Guard unit guarding the working frequency and/or the Auxiliary unit being worked with to relay this information. Without this ability to communicate information, a search patrol is of marginal value. The communication must be accurate, professional, concise and clear.
2. In 1999, the Commandant authorized the position of Auxiliary Air Crew by issuing reference (d). This provides the Auxiliary pilot with a highly skilled crewmember who can assist in all phases of any mission. In effect, the air crew is an observer with additional skills. This is especially important during times of high cockpit workload. The air crew qualified Auxiliarists should be able to fulfill all of the duties of an Auxiliary observer plus many of the non-flying skills required of a pilot. Ideally, the air crew rated Auxiliarist should be seated in the front right seat of the aircraft to better assist the PIC. However, the PIC retains the final authority on seating arrangements in the aircraft. All air crew shall complete the requirements listed in Appendix (D), the Air Crew Training Check List, prior to being assigned to missions as other than a trainee.
3. All observers shall complete the requirements listed in Appendix (C), the Observer Check List prior to being assigned to missions as other than a trainee.
4. The PIC is responsible for all aspects of the flight including all radio transmissions. The PIC has the authority to delegate duties during any aviation mission. This responsibility and authority for the mission exists from the time the PIC accepts the mission, through the flight planning for the mission and until completion of the mission. It is imperative that flight crewmembers understand this authority. The successful completion of the mission as well as the safety of all crew members, may well be jeopardized if the scope of this authority is not clearly understood. This includes the PIC's responsibility to make the decision whether to accept or decline a SAR request.

### **B. OBSERVER SKILLS**

#### **1. COMMUNICATIONS:**

- a. It is the responsibility of the observer to maintain communication with the Coast Guard and/or Auxiliary unit that is keeping the guard. He must also transmit messages he receives to the pilot. Depending on the equipment

configuration in the aircraft the pilot may or may not be able to hear the communications between observer and ground. In situations where the monitoring of communications is possible, it is probable that the pilot will disable this feature when he is communicating with ATC.

- b. Non standard communications should be cleared with the pilot prior to transmission. Proper radio procedures, (see Chapter 8), should be adhered to at all times.
- c. The observer must be familiar with the operation of the marine radio that is aboard the Auxiliary aircraft on which he/she is serving. He should be able to obtain and understand NOAA marine weather as received on the weather frequencies. Important information includes sea conditions, the presence of fog, the presence and movement of thunderstorms and the forecast of surface winds for over the water areas. The observer should listen to the marine weather and pass on to the pilot any significant information, which could affect the mission.
- d. Operations normal (ops normal) reports must be made every 15 minutes for single engine aircraft and at least every 30 minutes for multi-engine aircraft. Times given by aircraft in informal radio traffic are expressed in minutes after the hour with the hour itself not being given unless necessary. This is done because aircraft may cross time zones in a relatively short period of time. The "ops normal" report should include:
  - (1) Group being called
  - (2) Aircraft call sign
  - (3) Position
  - (4) Heading

## 2. NAVIGATION:

- a. See Chapter 8 of this text.
- b. The observer should be able to read and understand marine charts as well as air sectionals and terminal charts. He should be able to maintain a geographical awareness so that at any given time he can tell the unit maintaining his guard just where he is and in what direction he is moving.
- c. The observer must have a full understanding of latitude and longitude and must be able to relate the current position to ground references as well as chart references. It will help considerably if the observer is able to read and interpret the latitude and longitude from the aircraft GPS or LORAN unit.
- d. The observer should be able to plot a course from one point on the sectional to another. (From your present location to the CSP.)

- e. The observer should be able to plot a search pattern on the sectional and on the marine chart.

### 3. RECORDING:

- a. A Flight Log will be maintained during all flights. An example of a Flight Log is provided in Appendix B. Information recorded in the Flight Log should include the following.
  - (1) Registration number of the aircraft
  - (2) Names of all persons on board
  - (3) Engine start time
  - (4) Time of takeoff
  - (5) Point of takeoff
  - (6) Name of any airports that the aircraft lands at, include time
  - (7) Time of departure from that airport
  - (8) Time that the aircraft arrives on the scene for a search
  - (9) Distance from the takeoff point to the scene of a search when deployed on SAR.
  - (10) Time and location of ANY significant sighting
  - (11) On scene weather (include ceiling, wind speed and direction, visibility, wave heights, and direction of wave movement)
  - (12) Time the aircraft departs the scene of the search
  - (13) Areas searched including altitude and track spacing used
  - (14) Hours on the search
  - (15) Engine stop time
  - (16) Total hours flown
- b. This information is necessary for the Coast Guard to prepare its situation reports (SITREPS) and for the Auxiliarists to properly log his/her flight time so that he can complete the reimbursement forms.

4. SCANNING:

- a. See Chapter 7 “Techniques of Observation” of this text

5. SAFETY:

- a. See Chapter 9 “Emergency Landings and Survival” of this text

6. IDENTIFICATION:

- a. The observer must be able to identify:
  - (1) Coast Guard vessels
  - (2) Auxiliary vessels
  - (3) Private and commercial vessel types.

7. EQUIPMENT:

- a. The observer should be familiar with all of the equipment he may be asked to operate. This includes, but is not limited to:
  - (1) Connecting the marine radio to the external antenna
  - (2) Use of all safety equipment (Rafts, PFD, First Aid Kits)
  - (3) Emergency radios
  - (4) Marine radio
  - (5) Harnesses and seat belts
  - (6) How to open and close/lock the aircraft doors

8. AIRCRAFT INTERCOM:

- a. Operation of the intercom, setting sensitivity and volume also understanding how to set the volume control on individual headsets.
- b. The above listed skills are just a minimal beginning. Any additional knowledge can only add to the effectiveness and the safety of the mission.

### **C. AIR CREW SKILLS**

1. In addition to all of the observer skills listed above a qualified Auxiliarist with the designation of air crew must know the following:
2. GENERAL:
  - a. Fuses and circuit breakers.
  - b. Know the location of these important safety devices. Learn how to check them and how to re-set them.
3. COMMUNICATION SYSTEMS:
  - a. Audio Panel: Not all aircraft have audio panels. On the aircraft that do have a panel, its function is to enable the pilot to select various pieces of equipment. You can monitor one or both radios at the same time. You can select or eliminate the various electronic navigational devices. Some panels have a Marker Beacon system. You should be aware of what the various lights mean, as well as the aural sounds that go with the lights. The panel may have a master switch that shuts down all of the electronics.
  - b. Intercom: The function of the intercom is to enable the crew to communicate with each other via the headsets. Intercoms are designed to isolate various sectors pilot, pilot and co-pilot (crew) and all. They enable you to switch from headsets to speakers. Most of them have a separate volume control.
  - c. Radios: These may be singular or may be combined with a navigational aid. Learn how to turn them on and off. How to adjust the volume. How to select a frequency. How to use the flip-flop. (A single button that enables you to go from one pre-set frequency to another and then back to the first). Know what the squelch is for and how to control it. You should know how to select a radio when there are more than one in an aircraft as well as how to select which radio to transmit over when you are monitoring more than one.
4. NAVIGATION EQUIPMENT:
  - a. Instruments used for navigation include:
    - (1) Very High Frequency Omni Range (VOR)
    - (2) Automatic Direction Finder (ADF)
    - (3) Long Range Aids to Navigation (LORAN)
    - (4) Global Positioning System (GPS)

- (5) Instrument Landing System (ILS)
- (6) Distance Measuring Equipment (DME)
- b. You should know what each system is used for, the capabilities of each system and how to use the ones located in the aircraft you are flying on. You must also be able to read the latitude and longitude from the LORAN or GPS.

5. TRANSPONDER:

- a. Transponders are used to transmit a signal that identifies your specific aircraft to air traffic control. You should know the available settings, OFF, STANDBY, ON, ALTITUDE and TEST. How to turn it on and off, and what is meant by "SQUAWK IDENT" and how to do it. You should also know how to tune in the FAA controller requested codes. For VFR operations, you normally use code 1200, unless a different code is assigned to your aircraft by an air traffic controller, such as 1277 for SAR. You must also know the emergency codes; 7500 the hijack code, 7600 failure of radio communications, 7700 used for emergencies and when to use them. It is important that you do not accidentally put in one of these frequencies when moving from one frequency to another. Under no circumstances should a pilot of a civil aircraft operate on transponder code 7777. This code is always reserved for military interceptor operations.

6. INSTRUMENTS:

- a. You should be able to read and know the location of some of the basic instruments such as the:
  - (1) Altimeter
  - (2) Heading indicator
  - (3) Magnetic compass
  - (4) Attitude indicator
  - (5) Air speed indicator
  - (6) Tachometer
  - (7) Oil pressure indicator
  - (8) Oil temperature indicator
  - (9) Ammeter
  - (10) Fuel gauges

- (11) Fuel pressure
- (12) Landing gear indicator lights

## 7. AIRCRAFT COMMUNICATIONS:

- a. Communication procedures used by a pilot differ from those used by the observer. Air crew personnel must know both. Not only should you know what the communications are but also you should know how to find the proper frequencies to use and the correct terminology. Aircraft specific communications include:
  - (1) Clearance Delivery
  - (2) Ground Control
  - (3) Tower
  - (4) Departure and Approach Control
  - (5) Center
  - (6) Flight Service
  - (7) Unicom

## 8. NAVIGATION SKILLS:

- a. The ability to read and understand sectionals and terminal charts is essential. This is a skill required of observers, however the air crewmen skills must go beyond what the observer has been taught. Of course, air crew should be able to interpret the legend, and must also be able to find frequencies and define special use airspace.
- b. The ability to plot a course using sectional charts is important. You should be able to do time and distance calculations.
- c. Know how to use the various electronic navigational aids such as VOR, NDB, DME, GPS, etc.
- d. Be familiar with the various types of airspace such as, Class A, B, C, D, E and G as well as Military Operating Areas (MOAs), Restricted Areas, Air Defense Identification Zones (ADIZ) and Prohibited Areas. You should be able to identify these areas on the sectional.
- c. Air crew should be able to use low altitude enroute charts and approach plates in addition to the sectional charts. Air crew should have the ability to back-up

the pilot in all phases of flight in regards to heading, altitude, and communications frequencies.

9. WEATHER:

- a. You should be able to use and interpret Automatic Terminal Information Service (ATIS), Automated Weather Observation Service (AWOS), Automated Surface Observation Service (ASOS), Automated Flight Service Station (AFSS) and Direct User's Access Terminal (DUAT). In addition, the use of Aviation Routine Weather Report (METAR), the Aerodrome Forecasts (TAF), and Winds Aloft (FD) as well as Notice to Airmen (NOTAMS). You must be able to assist the pilot in making a go/no-go decision.
- b. NOAA: Marine weather as received on the weather frequencies of most marine radios, is useful in obtaining an overall weather picture. Important information includes sea conditions, the presence of fog, the presence and movement of thunderstorms, and forecast surface winds for the over water areas. This information is neither current nor complete enough to satisfy all of the requirements of aviation. Marine weather does not include ceilings (the lowest layer of broken or overcast layer of clouds) visibility, or the temperature/dew point spread. The observer should listen to the transcribed NOAA marine weather and pass on to the pilot any significant information, which could affect the mission.
- c. Aviation weather: Flight Service Stations. Area aviation weather reports are broadcast by FAA Flight Service Stations (FSS) on the VOR or VORTAC stations which have voice capability. Some navigation/communication transceivers have controls, which cut out the reception of voice transmissions from the VOR/VORTAC's. Be sure that the controls are set to receive the voice information when listening on navigation frequencies. Each FSS is assigned the geographical name of their location followed by the word "radio" for their radio call sign. Each FSS is able to transmit and receive through a number of remote sites. Each of these remote sites has been assigned a discreet frequency, which is listed on the aeronautical chart. The FSS can also be contacted on VOR/VORTAC's equipped for transmitting and receiving on the frequencies listed on the sectional chart. When listening on a VOR/VORTAC you should always advise the FSS which VOR/VORTAC you are using e.g. "Miami Radio, this is four tango mike listening on the White Lake VORTAC, over".
- d. Automated Terminal Information Service (ATIS): Many of the more active airports have an automated terminal information system, which is continually broadcast on a published frequency for the particular airport. In addition to the current weather, information concerning the active runways, special frequencies, and any hazards that exist or special procedures in use are broadcast. The broadcast is identified by a letter, which is changed each time the information is updated.



## 10. PROCEDURES:

- a. Preflight – Walk through the preflight with the pilot, using a checklist to determine the condition of the aircraft. Understand the need for and the use of a checklist.
  - b. Cockpit checks – Again the use of a checklist using the “challenge and response” method.
  - c. Emergencies – Immediate actions to be taken followed by the use of a checklist as confirmation.
11. Keep in mind that although the equipment on each aircraft may differ in its specific configuration the concept of operation will be the same. Although you may be air crew qualified you may not be familiar with the operational characteristics of the various knobs and switches in a particular aircraft. *You must be checked out by the pilot of the aircraft you are flying, prior to touching any of the equipment in the aircraft and then only as requested by the pilot.*